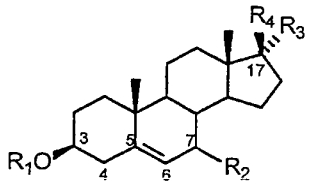
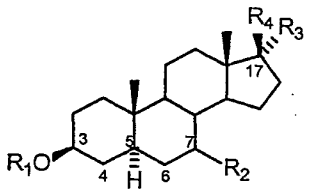
CLAIMS

1. A steroid derivative selected from the group of compounds defined by formula (I) or (II) as shown below, wherein the only difference between said formulas is the bond between carbon number 5 and carbon number 6:



(I)



(II)

wherein

R_1O is in the β-position and R_1 is a hydrogen atom; an NO_2, an SO_3H, an OP(OH)3 an acyl group, or any other group that forms an ester with an inorganic or organic acid; a protecting group, such as CH_3, CH_2OMe, or CH_2O-alkyl; an aliphatic chain which is straight or branched, saturated or unsaturated, or cyclic, including mixed cyclic and aliphatic substituents, which substituents are saturated or unsaturated, aromatic or heterocyclic and contains up to 20 carbon atoms, which substituents can be chosen from hydroxyl, any halogen, amino or alkylamino, carboxylic acid or carboxylic acid ester;

R_2 is R'O in β-position of carbon number 7 or is hydrogen in the case of formula (II); wherein R' independently of R_1, R_3 or R_4 can be any one of the groups defined above in relation to R_1;

R_3 is in α-position and is a hydroxyl group, an acyl-group or an alkoxy group R''O, where R'' independently of R_1, R_3, or R_4 can be any of the groups defined above in relation to R_1;

R_4 is in β-position and is hydrogen, an alkyl group, an acyl group, or an alkoxy group of the formula R'''O, wherein R''' can be any group mentioned for R_1, independent of R_1, R_2, or R_3, for use as a medicament.

2. A steroid derivative according to claim 1, wherein R_1, R', and/or R'' form one or more ether(s) and/or ester(s) with the steroid.

3. A steroid derivative according to claim 1 or 2, wherein R_4 is an acyl group, in which hydrogen, or an alkoxy or alkyl group, is attached to the keto group.

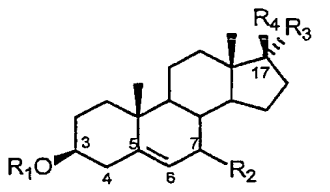
4. A steroid derivative according to any one of the preceding claims, wherein R_4 is acetyl (CH_3CO), wherein a keto group is attached to a methyl, which keto-carbon numbered 20 can have any alkyl, alkenyl, alkynyl, aryl, including branched side chains or mixed aromatic and aliphatic side chains, including cyclic saturated hydrocarbons as well as heterocyclic rings or heteroaliphatic chains containing e.g. N, P, O, Si, S, Se, CN, halogens and containing up to 20 carbons.

5. A steroid derivative according to any of the preceding claims, wherein said steroid is selected from the group consisting of 5-androstene-3β,7β,17α-triol, 5-androstene-3β,17α-diol-7-one, androstane-3β,7β,17α-triol and androstane-3β,17α-diol-7-one, or an ester or ether thereof.

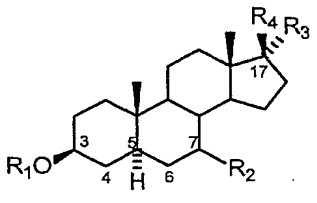
6. A steroid derivative selected from the group of compounds defined by formula (I) or (II) as shown above, wherein all substituents except R_2 are as defined in claim 1, and R_2 is in the α-position and can be R'O, O= or S=, for use in the manufacture of a medicament for the treatment and/or prevention of a benign and/or malignant tumour, which medicament is capable of interrupting disturbances in Wnt-signaling, such as cell-cycle arrest in G1-phase, and/or providing an angiostatic effect.

7. Use of a steroid derivative of 5-androstene-, 5-pregnenolone or corresponding saturated derivatives (androstane- or pregnane-) in the manufacture of a medicament for the treatment and/or prevention of a benign and/or malignant tumour, which medicament is capable of interrupting disturbances in Wnt-signaling, such as cell-cycle arrest in G1-phase, and/or providing an angiostatic effect.

8. Use according to claim 7, wherein said steroid derivative is described by formula (I) or (II), the only difference between said formulas being the bond between carbons 5 and 6, as shown below:



(I)



(II)

wherein

R_1O is in β-position and is a hydrogen atom; an NO_2, an SO_3H, an $OP(OH)_3$ an acyl- group, or any other group that forms an ester with an inorganic or organic acid; a protecting group, such as CH_3, CH_2OMe, or CH_2O-alkyl; an aliphatic chain which is straight or branched, saturated or unsaturated, or cyclic, including mixed cyclic and aliphatic substituents, which substituents are saturated or unsaturated, aromatic or heterocyclic and contains up to 20 carbon atoms, which substituents can be chosen from hydroxyl, any halogen, amino or alkylamino, carboxylic acid or carboxylic acid ester;

R_2 is R´O in α or β-position of carbon number 7 or where R_2 is O= or S=, where R´ independently of R_1, R_3 or R_4 can be any group mentioned in the definition of R_1 except for hydrogen in formula (I), but where R_2 can be hydrogen in formula (II);

R_3 is in α-position and is an hydroxyl-group, an acyl-group or R´´O, where R´´ independently can be any group as defined in the above given definition of R_1; and

R_4 is in β-position and is hydrogen, an alkyl group, an acyl group, or an alkoxy group of the formula R´´´O, wherein R´´´ can be any group mentioned under R_1, independent of R_1, R_2 or R_3.

9. Use according to claim 8, wherein R_1, R' and/or R" form one or more ether(s) and/or ester(s) with the steroid.

10. Use according to claim 8 or 9, wherein R_4 is an acyl group, in which hydrogen, or an alkoxy, alkyl, alkenyl or alkinyl group, is attached to the keto group.

11. Use according to claim 10, wherein R_4 is acetyl (CH_3CO), where a methyl is attached to the keto group, and this keto carbon in position 20 has an alkyl, alkenyl, aryl, including branched, side chain or a mixed aromatic and aliphatic side chain, including cyclic saturated hydrocarbons as well as heterocyclic rings or heteroaliphatic chains, such as those comprising N, P, O, Si, S, Se, CN, or one or more halogen and comprises up to 20 carbons.

12. Use according to any one of claims 7-11, wherein said steroid is selected from the group consisting of 17-hydroxy-pregnenolone (17α-OH), Δ-5-androstene-3β,17α-diol, 5-androstene-3β,7β,17α-triol, 5-androstane-3β,7β,17α-triol, 5-androstene-3β,17α-diol-7-one, 5-androstene-3β,7α,17α-triol, 5-androstane-3β,7α,17α-triol, 5-androstane-3β,17α-diol.

13. Use according to any one of claims 7-12, wherein one or more pregnane- and/or androstane-derivative corresponding to the steroid is used in the manufacture of the medicament.

14. Use according to any one of claims 7-13, wherein said interruption is provided by down-regulating an overexpression of cyclin D1 and β-catenin.

15. Use according to any one of claims 7-14, wherein said effects are essentially independent of any direct apoptotic effect on the cells of said tumour.

16. Use according to any one of claims 7-15, wherein said medicament is for the treatment and/or prevention of at least one medical condition selected from the group consisting of colon malignancies and other malignancies with a genotypic or phenotypic overexpression of factors belonging to the Wnt-signaling pathway, such as lung cancers, melanomas, breast cancers, mantle cell lymphomas and other lymphomas characterized by an up-regulation of said factors, head and neck cancers of squamous cell origin, oesophagal cancers, parathyroid cancers or adenomas or other tumours characterized by a disturbance in Wnt-signaling; and conditions dominated by pathologic neovascularisation, such as diabetic retinopathy, exsudative forms of macular degeneration, corneal neovascularisation, and vascular tumours.

17. A method of producing a medicament for the treatment and/or prevention of a benign and/or malignant tumour, comprising the steps of

(a) contacting 5-androstene-3β,17α-diol or corresponding saturated steroid, 5-androstane-3β,17α-diol, a sulfate donor, a sulphotransferase and PAPS to provide 5-androstene-17α-ol-3β-sulfate (17α-AEDS) or , 5-androstane-17α-ol-3β-sulfate (17α-AADS); and

(b) combining the17α-AEDS or 17α-AADS so produced with a suitable carrier;

whereby a medicament which is capable of acting as a ligand to peroxisome proliferator-activated receptor-γ (PPARγ) is produced.

18. A method according to claim 17, wherein the enzyme is DHEA-sulfotransferase or a phenolsulphotransferase.

19. A method according to claim 17 or 18, wherein the medicament is for the treatment and/or prevention of a condition selected from the group consisting of urothelial cancers, gastric cancers, cancers of the smaller intestine, pancreatic cancers, tumours derived from endothelial cells, from smooth muscle cells, cancer of the colon, chorioncarcinomas, adenocarcinomas of the lung and liposarcomas, and pathology of the eye tissues, such as cells of the macula and glaucoma.

20. Use of 5-androstene-17α-ol-3β-sulfate (17α-AEDS) or corresponding androstane-derivative 17α-AADS in the manufacture of a medicament, which attenuate the effect, such as androgens, deltanoids, estrogens, retinoids, HNF-4, COUPTF, RXR, RAR, progestins, rexinoids, or cofactors of these or ligands to PPAR-α, δ, γ.

21. Use of 5-androstene-17α-ol-3β-sulfate (17α-AEDS) and/or androstane-17α-ol-3β-sulfate in the manufacture of an immunomodulating medicament, e.g. for the treatment and/or prevention of an inflammatory disease, such as rheumatoid arthritis, arthrosis, or inflammatory bowel disease, or a disease, such as multiple sclerosis or Guillain Barrés syndrome.

22. A medicament produced according to any one of claims 17-19, which is suitable for the treatment and/or prevention of an inflammatory condition of the eye or in dry macular degeneration.

23. A medicament produced according to any one of claims 17-19, where a prolongation of its effect is achieved through inhibition of sulphatase activity e.g. through simultaneous administration of an inhibitor such as Coumate®.

24. A method according to any one of claims 17-19, where 5-androstene-17α-ol-3β-sulfate or androstane-17α-ol-3β-sulfate are produced synthetically.

25. A pharmaceutical composition produced according to the method of any one of claims 17-19 and further comprising 9-cis-retinoic acid, one or more corticosteroids or other ligands of nuclear receptors such as androgens, deltanoids, estrogens, retinoids, HNF-4, COUPTF, RXR, RAR, progestins, rexinoids, or cofactors of these or ligands to PPAR-α, δ, γ, having the same biological function in order to attenuate the effect.

26. Pharmaceutical composition according to claim 25, wherein the composition is in prolonged release form comprising cationic dextranes.

27. Method for the treatment of humans suffering from benign and malignant tumours, wherein a therapeutically active amount of a compound according to claims 1 to 6, and claims 7-16.